

UNIVERSITY OF DELAWARE

NEWARK, DELAWARE

1971

COLLEGE OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING
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May 14, 1971

Mr. Uldis Karins, County Engineer
New Castle County Engineering Building
P. O. Box 165
Wilmington, Delaware 19808

Dear Mr. Karins:

Enclosed are a set of graphs and a table that depict the water quality parameters that have been measured at the Tybouts Corner Sanitary Landfill during the period of January through April 1970.

Of the eight wells available for sampling at the start of the period, only six remain operative (P-1, P-2, P-3, P-5, P-7, P-11). Wellpoint P-9 has an obstruction below ground level and cannot be sampled. Wellpoint P-8 was covered and lost in late April. Possibly P-8 could be made available for sampling for very little expense by locating, uncovering, and bailing it clean. The obstruction in wellpoint P-9 is undetermined but suspected to be a kink in the pipe; if so, the obstruction could possibly be swaged open with little expense. Although listed as operative, wellpoint P-1 was sampled only once during the reporting period. Other attempts to sample P-1 found the well dry.

The first wash pond has been completely filled since the last report period. Thus, sampling at station S-1 was replaced with sampling at station S-2 located at the south extremity of the middle wash pond. (This middle pond has been largely filled also). The BOD and total coliform concentration in the pond samples have increased markedly during the period; however, there is no evidence of increased BOD or coliform levels in Pigeon Run or Red Lion Creek. There has been no significant change in the inorganic parameters measured at either the pond or stream sampling stations.

The high specific conductance and chloride ion levels observed and reported during the last report period have continued to increase during the current reporting period. In addition, the acidity, alkalinity, and hardness concentrations sampled from these same locations have been increasing throughout the period. Neither wellpoint P-5 or P-8 have indicated any significant changes in quality due to the landfill operations.

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Since the last reporting period, filling operations have progressed far beyond the locations of existing wellpoints. Consequently, we recommend two additional wellpoints be provided in the southwestern sector of the landfill, along the east side of the wash pond, and in the vicinity of the present filling operations. Dr. R. D. Varrin is available to spot the desired locations of the wellpoints in the field.

Tapwater sampling from houses located in the vicinity of the landfill has continued. Positive tests for E-Coli are telephoned to the New Castle County Health Board. No E-Coli were observed during this reporting period. The results shown on the enclosed table indicate total coliform count.

In summary, there are definite indications of groundwater deterioration from landfill leachate under the landfill site. There has also been deterioration in the quality of the wash pond water as would be expected since the ponds are inter-connected, have been subject to dumping and filling, and are the recipients of much of the landfill site surface runoff. However, to date, samples taken from Red Lion Creek and Pigeon Run have not indicated any measurable deterioration due to the landfill operation.

Sincerely yours,

Gerald P. Rasmussen
Gerald P. Rasmussen
Lecturer

GPR/s

cc: R. D. Varrin

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